# BIOS

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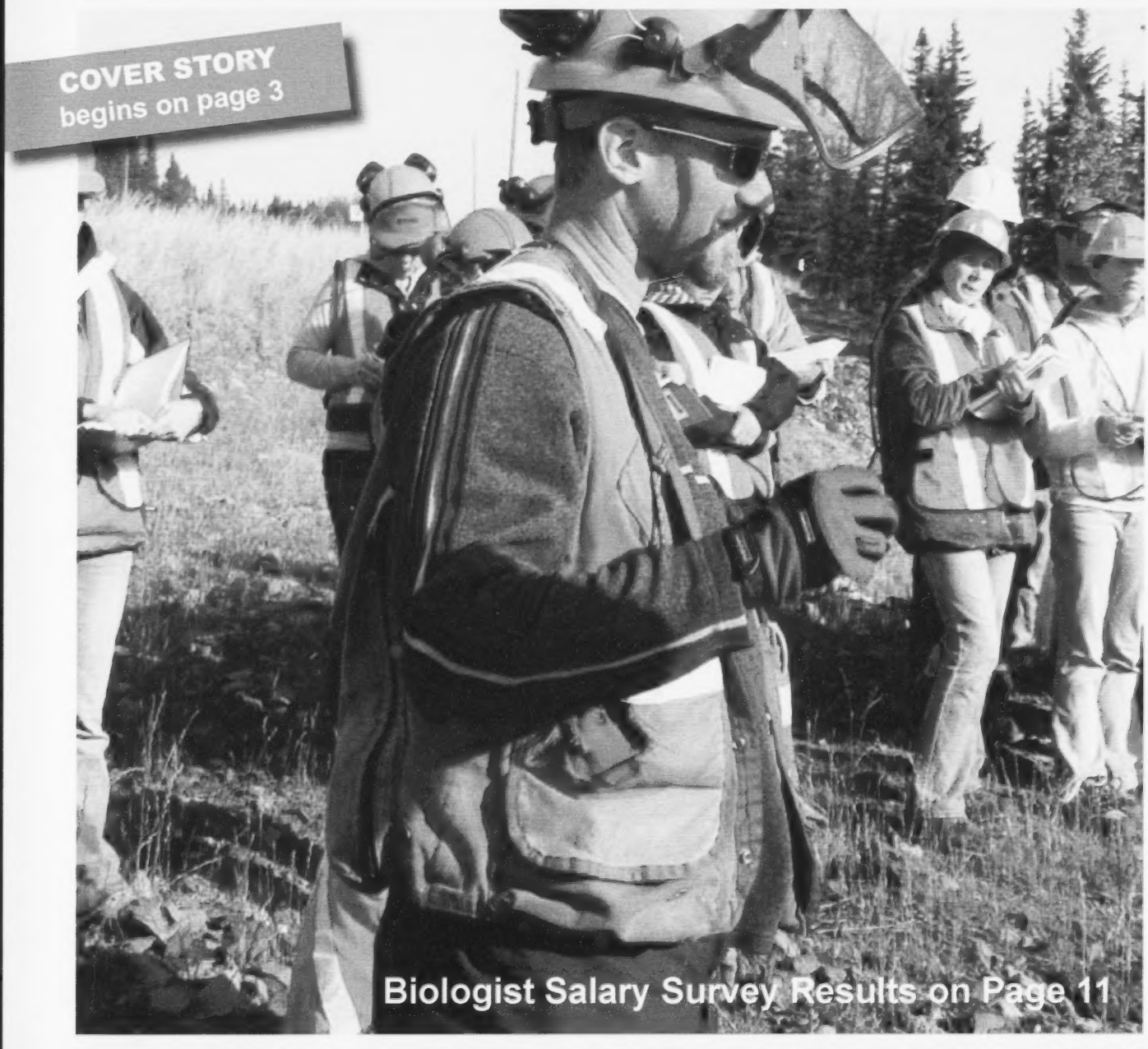

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NAIT Biology Technologist field trip with instructor Dave Critchley, P. Biol.

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# President's Address

***By Karoliina Munter, P. Biol.***

The implementation of the Policy Governance ® model has freed the Board to focus more on strategic matters instead of the day-to-day management of the organization. However, this shift has not yet shortened the Board meetings; there is a lot going on!

The Board's annual work cycle is at the point where we start the preparations for the Annual General Meeting (AGM), which will be held in Edmonton and Calgary on April 8th. I hope that having an opportunity to join the AGM in two locations will make it easy for many members to attend. The AGM will include important discussions about the proposed membership category and bylaw changes and potential changes to our governing legislation. Be there!

**Memorandum of Understanding Signed**

I am happy to announce that the ASPB has signed a Memorandum of Understanding (MOU) between our association and the Association of the Chemical Profession of Alberta (ACPA), the College of Alberta Professional Foresters (CAPF), and the College of Alberta Professional Forest Technologists (CAPFT). The MOU allows these organizations to pursue together a more effective and sustainable model of professional regulation.

The foresters and forest technologists are merging, which will require the Regulated Forestry Profession Act to be opened and modified. The chemists and biologists have been invited to consider this opportunity to include their professions with the foresters under one umbrella Act.

The potential benefits to all four parties would include greater sustainability and economy of scale, increased communication and cooperation between the professions, better public accountability and consistency, and a much greater political voice. Mandatory registration, which the foresters and forest technologists already enjoy, would be extended to the biologists and chemists.

**Mandatory Registration – What Is It?**

Mandatory registration is described as follows in the Regulated Forestry Profession Act: a person must apply for registration if the person is qualified to meet the requirements for registration as a regulated member, and intends to provide any or all of the following:

- professional services on public land;
- the teaching of the practice of a regulated profession to regulated members or students of the regulated profession;
- the supervision of regulated members who provide professional services on public land.

In other words, mandatory registration would mean that if you are educated as a biologist and working as a biologist on public land, you must register as a member of the biology profession. Registration as a Professional Biologist is currently voluntary; the argument behind mandatory registration is that it provides better protection of the public compared to voluntary registration, as more biologists would be held to an ethics code and continuing competency requirements.

**Watch ASPB's regular e-newsletters for updates on this and other initiatives currently underway.**

Photo Credit: KM

# COVER STORY:

## Proposed Changes to ASPB Membership Categories

Since receiving its charter as a professional society in 1975, the Alberta Society of Professional Biologists has only registered and regulated practitioners who hold university degrees as Professional Biologists. During its annual meeting in April, 2013 (held at the Kahanoff Centre in Calgary with concurrent web-conference access from the Northern Alberta Institute of Technology in Edmonton), two motions were passed by the membership which will likely have a profound impact on the Society in the years ahead.

One motion directed the Board "...to explore the option of including a Technical member category with communication and consultation with the membership for decision at 2014 AGM". A second motion directed the Board "…to explore expansion of experience criteria, which may include areas such as site assessment, in communication and consultation with the membership for decision at 2014 AGM." Both motions carried, and the board and its relevant committees spent several months over the spring and summer developing a framework for moving forward and reporting to the 2014 annual meeting.

Following a round of ASPB-hosted Open House information sessions and online consultations available to the ASPB Membership in the fall of 2013, a draft document has been prepared outlining a proposal for the "Affiliation and Integration of Technologists and Registered Biologists within the Society", which includes an appropriate expansion of experience criteria which were seen to have evolved since the inception of the organization, from a strict inventory of biological systems to a more holistic treatment of environmental systems.

This winter's edition of ***BIOS*** magazine includes a number of articles and viewpoints from ASPB members, which we hope our readers will find informative. We would like to especially thank long-standing member Chris Powter for agreeing to re-visit an article he wrote on the subject over 25 years ago. That interview can be found on Page 7.

***Q & A with Dave Critchley, P. Biol.***

## An Enhanced Future for Technologists

Dave Critchley, P. Biol., is Senior Faculty Researcher and an Instructor of Biological Sciences at the School of Sustainable Building and Environmental Management at the Northern Alberta Institute of Technology in Edmonton, Alberta. He also serves the Alberta Society of Professional Biologists as a committee member for professional development, and has been actively engaged in the recent review of membership categories which has led to a proposal for the inclusion of categories for biology technologists. BIOS interviewed Critchley by email in January:

***BIOS:*** *Could you start by giving me a brief overview of just what it is that biology technologists do? Do they have the same scope of practice as P. Biol.s?*

**DC:** The "Techs" have highly varied roles and usually work for six general groups: Government, Industry, Academia, Consultants, NGO's, "Arms Reach" government (Pseudo government organizations - not quite NGO and not quite Government). Rarely are they self-employed.

A typical Tech will be involved in a supporting role, collecting, sampling and monitoring under the direction of a research lead, supervisor or manager. The typical Tech will not be determining research questions nor making interpretations of results or managerial decisions; this is typically left to practitioners at the P. Biol. level. Depending on the stream of training, Techs will be working with water, air, soil, flora or fauna. This also extends to include cellular levels, molecular science, some forensic work and medical or food related research. Many Techs will be involved in reclamation and remediation projects as well. Techs will work in both laboratory or field settings, or a combination of both, along a gradient of remote wilderness locations to heavily developed urban settings.

***BIOS:*** *Many of your students will be able to become members of ASPB should the Society vote to open its membership to technologists. Can you speculate what impact this would have on your students?*

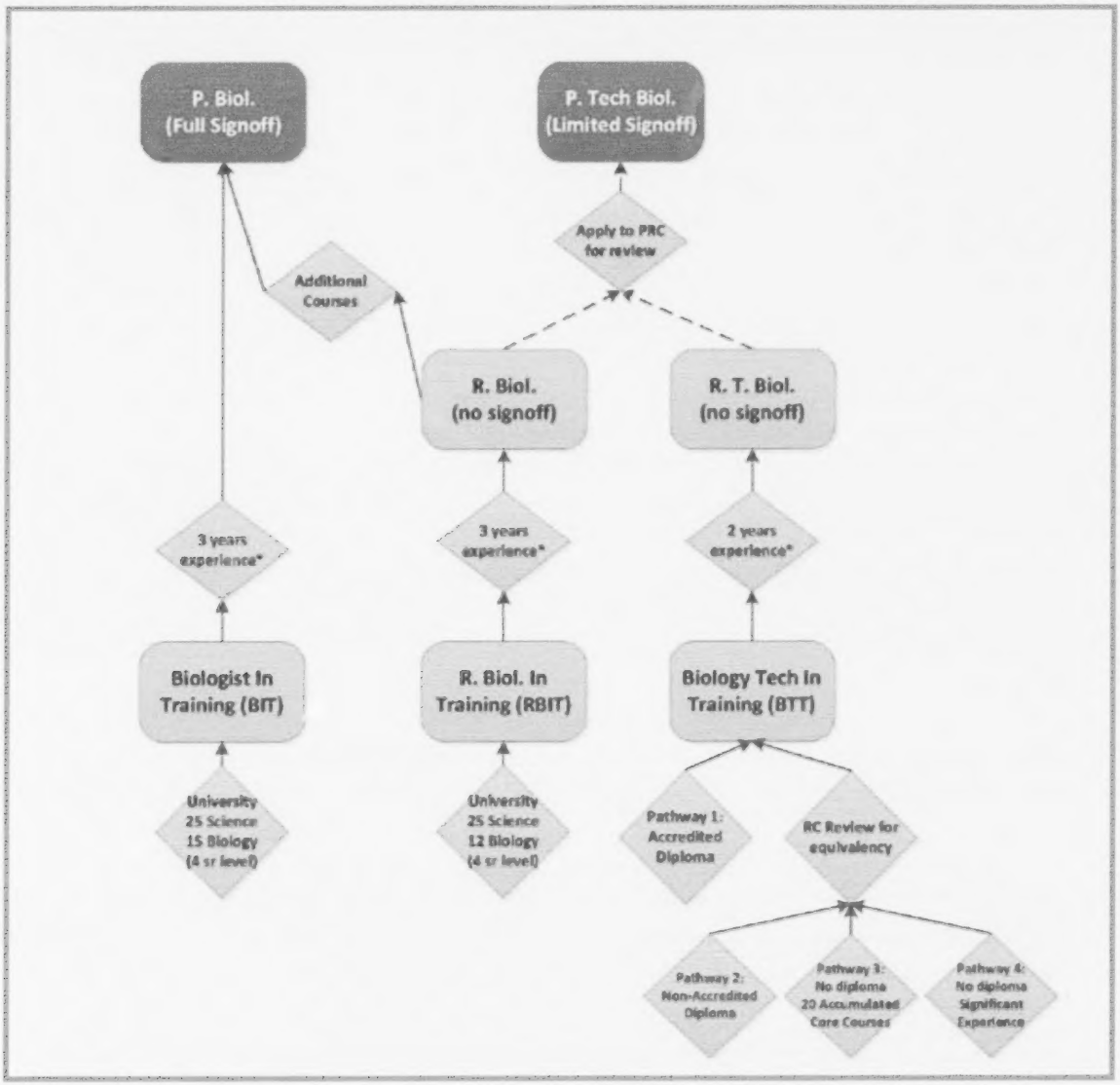
**DC:** The students will have a much-needed family to join! They are currently on the fringes of some other organizations which do not, to any great extent, provide mentorship and support. Having a clear linkage to a designating body will likely enhance ethical and accountability aspects by providing professional benchmarks and a clearer understanding of responsibility to the greater community.

The students will be able to develop stronger positive working relationships by understanding their position and role, and by having access to a number of other members who may be undergoing similar learning processes as new graduates.
The clearest benefit to me is students clearly understanding their professional niche and having an enforceable standard of practice to which to adhere. This is a clear way to initiate positive working relationships for practicing Techs as government requirements and regulations evolve into the future.

***BIOS:*** *Do you feel the students understand the opportunities this opens up for them?*

**Continued at bottom of page 4**

## At a Glance:
## ASPB PROPOSED MEMBERSHIP




**Continued from page 3**

**DC:** Students in my class and former graduates with whom I have had the opportunity to talk about this understand the benefits of membership. I know that others will need to have some mentoring and education from ASPB about role they will fill. This will require considerable communication from various levels to display the benefits to membership, at the outset and into the future. I feel that the students interested in immediate employment are much more understanding and interested in this process than the ones moving on to further education.

BIOS: Do you expect this will have an impact on your school and on its curriculum development?

**DC:** Yes, indeed this will have the potential to impact the school. There is an inherent increase in program desirability when there are direct linkages to professional designations, so there is a potential to see the number of students applying for programs to increase, notwithstanding that we do have a finite capacity. And we will likely be able to select higher-performing students and increase the overall quality of the graduating cohort.

Additionally, as there is a linkage to a professional designation, there is greater onus on the schools across the province to update technology, skills and deliverables over time. With respect to curriculum I expect that there will be limited major change, as we have industrial and government requirements to maintain. However, I suspect there will be some fine-tuning and incorporation of professional roles into the educational deliverables.

***BIOS:*** *Thank-you!*

# Experience Categories Undergoing Revision

As the ASPB moves down the path to adding membership categories, it has become evident that the society also needs to address the current experience requirement in the regulations. The ASPB is proposing to add "environmental systems" (the collective interactions between biological organisms and abiotic conditions) to the regulations. Currently, many applicants meet the university education requirements but work in areas beyond the ASPB's currently stated experience requirements. This is particularly apparent in the practice of reclamation and remediation; the following article is contributed by the ASPB's Practice Review Chair, Elvie Reinson, P. Biol.:

***Biologists, Reclamation, and Remediation***

When human activities make an impact on natural landscapes, reclamation and remediation are fundamental to the goal of restoring the land as a functioning unit within the ecosystem. The process involves remediation of the soils, water and air to remove contaminates detrimental to the ecosystem, followed by reclamation of the surface to return the land to its original – or an equivalent – land use.
Professional biologists, working alongside professionals in other science disciplines, undertake fundamental roles in this process:

- Developing reclamation plans to restore the land back to equivalent land capacity, including re-vegetation and ecosystem trajectory, through detailed site assessments
- Assessing migratory pathways and receptors for many anthropogenic impacts in evaluated criteria usage
- Assessing how ecological receptors are, or will be, influenced by contamination in various media and how that contamination will influence future ecological function
- Developing bioremediation and/or phytoremediation and/or many other remediation options used to remediate contaminated soils and groundwater
- Developing risk management plans and assessments which determine the risk of anthropogenic chemicals to biological receptors such as fish and wildlife
- Determining if, indeed, a site has been reclaimed back to original, or equivalent, capacity within the context of a healthy ecosystem

Biology is the study of life and living organisms. It follows, then, that successful reclamation and remediation requires Professional Biologists, working closely with colleagues in other disciplines, to restore human impacted sites so they no longer pose a risk to the life of all living organisms.

## PASSAGES

**Curt Kerns**
Curt Kerns, President/Chief Science Officer of WetlandsPacific Corp., passed away on August 13, 2013 at Nanaimo, British Columbia.

**Charles J. Pacas**
Charles J. (Charlie) Pacas, acclaimed aquatics expert with Parks Canada (Banff National Park) passed away November 20, 2013 at Canmore, Alberta.

# Online Tracking for Continuing Competency

The demonstration of continuing professional competency is the keystone to the survival (and continuing recognition) of the Alberta Society of Professional Biologists (ASPB) by the Government of Alberta. The ASPB's Continuing Competency Program (CCP) satisfies the society's obligations under the "Professional & Occupational Associations Registration Act", and the program is perceived by our peers in other professional organizations as being worthy of professional status.

The CCP requires that a P. Biol. earn Professional Development credits from a minimum of one category in any given year (but from two or more of the seven categories during a three year period). The unit of measurement is called a "Professional Development Hour" or "PDH". There is flexibility in terms of the number of PD categories, the length of time during which the minimums must be attained, and carry-forward provisions.

To make it easier for members to track their professional development, and more efficient for auditors to gather required information, the Practice Review Committee has developed an online tracking system, which is self-administered and based on the honor system. For example, instead of printing and signing the Declaration of Professional Practice, completing the online CCP declaring that the information provided is factual and correct can be done with the click of a button.

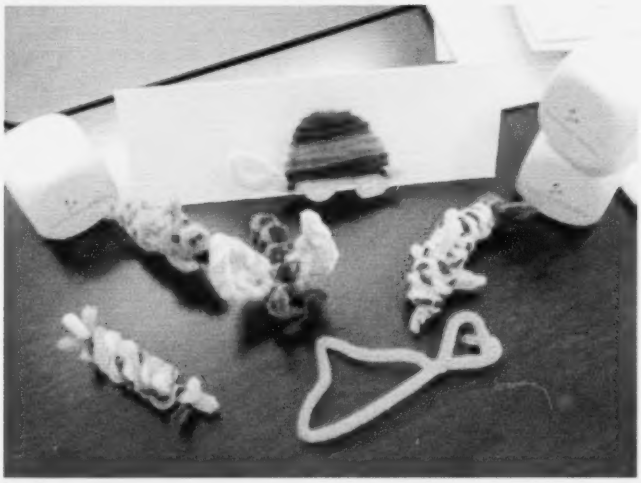
A presentation of instructions for using the new system is available for viewing and downloading in the Members Section of the ASPB website (at http://www.aspb.ab.ca/pdfs/CCP_Online_Tracking_System_How_To_Manual.pdf)

## Needed: Practice Review Committee Volunteer

The ASPB is required to have at least three professional biologists on the Practice Review Committee, under the Professional Biologist Regulations. The Board must approve these committee members, who are responsible as a committee for putting together the Continuing Competency Program, including the online app that was launched last year. The committee needs volunteers to help revamp the program and to develop auditing protocols using the new system. If you are interested in helping, please go to the Volunteer section on the Society's website or email the Executive Director.

*Growing a more efficient society:*

# Policy Governance and the ASPB



How do you get a bunch of biologists to sit inside on a beautiful weekend in September writing policies? It's simple: you just give them a bunch of pipe cleaners! The photo accompanying this article represents some of the work accomplished by the ASPB board members and the executive director last fall when – with the help of a Policy Governance ® consultant – the board developed policies under the Policy Governance ® model.

Policy Governance (PG) is a board governance model which will allow the ASPB Board to focus on leading the Society while delegating management tasks to the Executive Director through the development and use of policies. There are four categories of policies:

1. **Ends:** (statements which describe what the Society is to produce, focusing on the Members and how to serve them better),
2. **Executive Limitations Policies:** (boundary-setting policies which allow the Executive Director to make decisions about how to achieve the Ends),
3. **Board-Management Delegation Policies:** (how the board delegates authority to staff),
4. **Governance Process Policies:** (how the board operates).

***What does all this mean for the ASPB?***

The benefits of adopting a policy governance model are manifold, and will assist the Board:

- to be accountable to the position of trust in which it has been placed by its "owners" (the Members)
- to provide strategic leadership to the organization—the board's key responsibility—by clearly defining, on behalf of the Members, what human needs are to be met, for whom, and at what worth
- to clearly distinguish between *Ends* (above) and *Means* (ways of doing things)
- to establish clarity between the roles of board and management
- to unleash the creativity of management while holding management rigorously accountable for delegated areas
- to be involved in appropriate decisions without either "meddling" or "rubber stamping"
- to set parameters for acceptable organizational performance and for itself by establishing broad policies in four logical categories that make intuitive sense

Karoliina Munter, ASPB president, participated in the workshop and is pleased to see the new governance model moving forward smoothly. "This process has been very well thought-out and will open up opportunities for the ASPB to better serve its members as it grows and responds to new professional realities," says Munter. "I especially want to thank our past-president Susan (Patey-LeDrew) for her leadership throughout the development process."

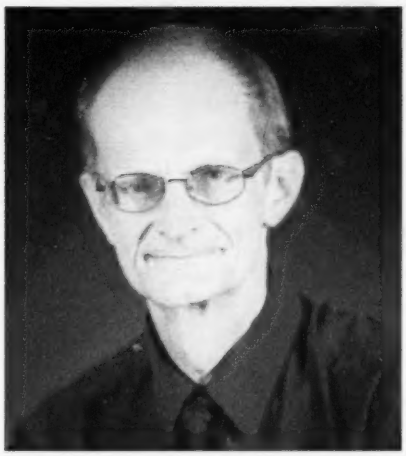
# Meet the Student Rep at MacEwan University

The ASPB's student representative at MacEwan University had always wanted to be a scientist, but ended up getting married, having children, and becoming an accountant instead. Now in her forties, Tina Tipton is following her early dreams by working full time to get her BSc at MacEwan, with an eye on molecular genetics.

When Tina heard about the ASPB she immediately wanted to get involved: "When they needed a student rep on campus, I jumped at the chance to help out," she says. "(I started with) putting information about the society in the departmental newsletter, and speaking to some of the biology classes. I've been handing out brochures and trying to get my peers as interested as I am."
If she hasn't already tracked you down on campus, make sure you touch base with Tina (tiptont@mymacewan.ca) to share ideas, ask for information, or volunteer to help out with ASPB activities.

*Back to the future:*

# ASPB membership categories; A 25-year perspective



In 1986, biologist C. B. (Chris) Powter wrote an article in this magazine calling for changes to the ASPB membership structure which would enable graduates of (and students at) Alberta's technology schools to become members of the society. Powter, currently executive director of the Oil Sands Research and Information Network (OSRIN) at the University of Alberta, agreed to talk with BIOS about that article and his thoughts on the new membership categories which are currently being proposed for the ASPB. We spoke with him by telephone from his office in Edmonton:

***BIOS:*** *In 1986, in BIOS magazine, you started off what surely must be viewed as a seminal article with the following premise: "It seems to me that we are missing an important segment of biologists under (then-existing) regulations, namely the graduates and students of Alberta's technology schools." That simple concept has been energetically debated over the intervening quarter century, and finally, in 2014, it seems to have gained sufficient traction to yield significant change to the membership structure of the ASPB. Why did it take so long?*

**CBP:** I don't know whether it was the nature of the time or the nature of the people in the organization at the time. Other organizations are currently ahead of the ASPB in terms of bringing in these new members but I don't think they were necessarily all that much further along back then. And, back then I'm not sure there was even a driving force to do this: I was saying, "why not" but there was no real "why" either.

Now, I think with the growth of professional sign-off requirements under the provincial government there are new opportunities; I expect this is in part why some of the other professional organizations are bringing in their technologists and technicians. (And, there are now more reasons for those groups to ask "wait a minute, why (is the work we do) not included?")

***BIOS:*** *Back then, you asked rhetorically, "Is it important that we treat these people as pro¬fessionals?" and answered, "Yes, because our very existence depends on their capability and professionalism." Is this as true today as it was in 1986?*

CBP: I think so. I think what we are seeing more and more is a distinct separation between what I called in my 1986 article the 'paper biologist' versus the field biologist. It's just the nature of the business; it's becoming increasingly complex and there are a lot more disciplines involved and so you end up with senior people doing coordinating work and folks out in the field gathering data. What I was arguing back in 1986 was that there is no point in having professionals analyse stuff that has been collected by people who really don't know what the heck they're doing, so we need to make sure they are professionals and operate under the same philosophy and guiding principles as the people doing the analysis.

A colleague and I did a presentation on this same topic at a recent conference and quite literally had a young professional in the audience ask, "why would I want to do this, you're scaring the hell out of me!" Well, I had to answer that's not exactly what we are trying to do but yes, it is vitally important. You can no longer be doing this just because you are interested in biology; there are potentially many serious consequences to what you are doing and you have to take it very seriously.

Whether this requires a professional title is arguable, but it does require a professional approach throughout your business, right from the folks in the field to the folks in the office.

***BIOS:*** *In 1986, you commented that there is a big difference between the education goals of universities and those of technology schools, pointing out that universities train students in the concepts of biology and only to a lesser extent in applying concepts to the real world, whereas the technology schools train hands-on workers who "get to know the what, when, and the why of data collection and analysis." In your view, are the lines of distinction still as clear between the academic track at universities and the more hands-on training received from technology schools?*

**...there is no point in having professionals analyse stuff that has been collected by people who really don't know what the heck they're doing...**

**CBP:** There are certainly still people in universities who have lots of attitudes about technology schools, and vice versa, but I have had opportunities to look at this from multiple points of view and see there are many university graduates who choose to take courses at a technical school to get hands-on training to do real-world jobs (as opposed to just thinking jobs) and the flip side is the number of technologists who recognize the benefits of university training. So the notion that a graduate of one would never attend the other is clearly not the case any more.

***BIOS:*** *As the ASPB looks toward changes to its membership categories, the whole issue of continuing competency will perhaps take on some special relevance?*

**... professional development and continuous learning are key in all organizations...**

**CBP:** Professional development and continuous learning are key in all organizations. The kinds of skills that people want often depend on the needs of their employers and the nature of the job at hand. We had a university-level workshop recently where we got a bunch of stakeholders together and asked "what do you want these grads to be able to do when they get out?" and often it's the same kind of things they want the tech-school people to be able to do (like "do you know how to drive a quad safely") so it's not just giant brainy thinking stuff – it's the hands-on practical things that make you an instantly employable person.

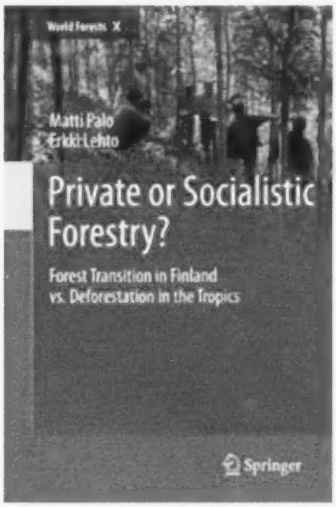
***BIOS:*** *Are the technology schools still up to the task of producing professional-level technologists?*

**Continued on page 8**

*Book Review:*

# Private or Socialistic Forestry? Forest Transition in Finland vs. Deforestation in the Tropics

***Reviewed by S. K. Basu, P. Biol.***




Deforestation has emerged as a global tragedy in the most recent pages of the history of human civilization. Our villages, towns and cities were all carved out from areas of pristine nature as we have "progressed" in terms of technology, economy, society and development. Over time, as we have started realizing the grave dangers we face through the mass destruction of the world's forests, there has been some hue and cry about developing eco-friendly and sustainable approaches to conserving forests. However, such efforts have not been adopted at a global level. The pressures of global economics, human demographics and the expansion of industry and agriculture into forested areas have not abated, and despite great shifts in ecological understanding, these have not resulted in the successful conservation of residual forest resources around the world.

While there have been noticeable changes and success stories in afforestation and social forestry from First World countries, the Third World nations from the continents of Asia, Africa and Latin America share sad stories of mass deforestation, a lack of successful conservation efforts and the over-exploitation of forest resources by local populations for daily sustenance.

Authors Matti Palo and Erkki Lehtto have demonstrated painstaking effort and great care and attention to detail in the creation of this volume. The book's central theme is the challenge of tropical deforestation, and the authors have provided an excellent comparison between social forestry successes in Finland and the rapid destruction of forests in the tropical regions of the world.

A key attribute of this volume is the simplicity of its language, laying out complex issues in straightforward and easily understandable terms. Readers will be enriched by the depth of the authors' vast overseas experience, and the authors have adopted multiple layers of communication through using interactive tables, graphs, charts, maps, images, word diagrams, and schematic charts in addition to a comfortable non-technical writing approach to explaining and expanding on major issues. The volume also has a detailed bibliography and an extensive index which will serve serious readers seeking data for their research.

The authors have made careful comparisons between Finnish forest regeneration and the destruction of tropical forests in developing and under-developed Third World countries. The numerous examples and in-depth case studies provided help to paint a comprehensive picture of global forest resources and their role in the ecosystem, along with the challenges of large scale destruction, rejuvenation and conservation. The book will be a great resource for students and researchers in the fields of Forestry, Forest Management, Ecology and Environmental Sciences.

***Private or Socialistic Forestry? Forest Transition in Finland vs. Deforestation in the Tropics*** *by Matti Palo and Erkki Lehtto; 2012; Springer; Dordrecht Heidelberg London New York; Hardback & e-book/pdf versions available; ISBN (Hardback): 978-90-481-3895-1; e-ISBN:978-90-481-3896-8; DOI 10.1007/978-90-481-3896-8.*
*Contact the reviewer: Saikat Basu at saikat.basu@uleth.ca*

**Continued from page 7**

**CBP:** Yes, I think they are, and probably maybe more so now as the institutions continue to adapt their course offerings to the needs of employers.

***BIOS:*** *In your view, will the currently proposed changes to the ASPB membership structure address the challenges and realities of the profession today and into the foreseeable future?*

**CBP:** I think it will help. As I look at the proposed changes, my first thought is that you are still creating two classes of people, just putting them in the same tent, so I am not sure if it goes as far as I would have wanted back then (in 1986). Ultimately we should all belong under the same umbrella, where people can see a clear path to move from one level to another – a path which is both experience and training based.

Nonetheless, this is a huge step forward that we recognize these people exist, have value, and can be associated with ASPB members who acknowledge these people can actually make decisions. That's a big step.

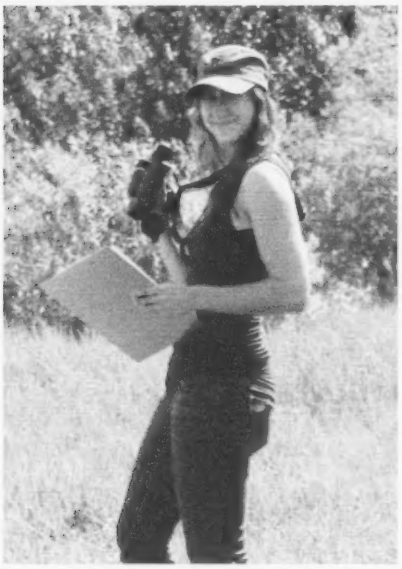
***BIOS:*** *Thank-you for doing this.*

## All biologists are great photographers!

BIOS magazine, which is published by the ASPB three times a year, is seeking stunning photographs for the magazine's cover. We are looking for photos which show biologists at work, or spectacular shots of landscapes or creatures great or small, with an emphasis on the unusual.

Of course, photos for consideration should be submitted as high resolution digital files, 300 dpi. The submission should include a very brief description as well as a signed letter of permission for a one-time use for the printed and e-versions of BIOS. If there are people in the photo, we will also need a letter of permission from them to allow us to publish their photo image.

# ASPB's Mentorship Program From a Protégé's Perspective



*Ms. LeCourtois is an ASPB Biologist in Training (BIT), who earned her BSc from the University of Alberta in Edmonton. She joined the ASPB Mentorship Program in 2013, and was paired with Robin Leech, P. Biol. who wrote of his experience as her Mentor in the Fal 20131 edition of BIOS. Caroline currently lives in Edmonton and works as an Avian Biologist with Aquality Environmental Consulting Ltd.*

*Written by: Caroline LeCourtois, BSc, BIT*

When I went to renew my membership at the beginning of last year, I remembered seeing the option to partake of the mentorship program and thinking that I wouldn't need it; I thought, that's only for students. However, after a year of looking at the program every time I was on the ASPB website, I realized that I just needed to try it. Only good can come of it, right?

I signed up and had no idea what to expect. Within a few weeks I got an email confirming that I had a mentor! I was wondering who it might be…a well-known bird biologist? A plant ID expert? An insect enthusiast? How would they know who to pair me up with? I was shocked and yet pleasantly surprised and more than a little nervous when I learned that my mentor was none other than Robin Leech. The Robin Leech – the amazing spiderman! I had seen his name everywhere, in newsletters, at ASPB events, and winning great awards!

Robin and I met at the beginning of the summer. We exchanged contact information and started talking about everything. He introduced himself and told me about his life experiences, then asked me what I wanted to do and to achieve in my life. I knew within 15 minutes of talking with Robin that he was exactly the person I needed and that we'd be friends well after the program was done.

Robin made all the necessary arrangements and updates with the ASPB about how everything was going, and we maintained regular email and telephone correspondence, often weekly. He hooked me up right away with what seemed like a million-and-one options and opportunities to help me pursue both my personal and professional goals.

Robin offered such great opportunities that I just couldn't say no! I got added to a new mailing list where each email fascinates me. I got the chance to go to an internal training program with the Canadian Wildlife Service. I got the motivation I needed to pursue volunteering and internship opportunities with the Edmonton and Area Land Trust and the Beaverhill Bird Observatory. I got to meet and talk to some really knowledgeable and amazing people.

I had such a blast! I probably had one of the most fulfilling years of my life, all because I decided to check the YES box to the "mentorship program" on my membership renewal form. If anything, after following through with the mentorship program, I am aware of how one small decision can make a big change in someone's life. There are so many great individuals out there with so much knowledge, and they are more than willing to share it and help someone else pursue their goals and passions. All you need to do is say yes!

I did and I haven't looked back!

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# Revegetation Species Profiles For Boreal Forest Reclamation

***Submitted by Ann Smreciu and Chris Powter***

Prunus Virginiana, grown from berries on a revegitated site. Photo by Wild Rose Consulting Inc.

Oil sands reclamation guidance documents, prepared by the Cumulative Environmental Management Association and endorsed by the Alberta provincial government, include lists of potential reclamation species and their characteristics.

In 2013, Wild Rose Consulting (Smreciu et al) consolidated and updated profiles for 98 of these species. Each profile is illustrated with photographs of the plant, flowers, fruit and/or seeds (if available). Line drawings are also included if available; references for the content are provided with each profile.

Although the original objective for the profiles was to inform decisions made by reclamation planners and practitioners in the oil sands and to promote the inclusion of these species in revegetation, the information has a much wider audience appeal. Wild Rose continues to be inundated with requests for all types of species information from professionals in other industries as well as from provincial, municipal and federal government agencies, nursery producers, aboriginal groups, researchers, archeologists, cultural anthropologists and ethno-botanists, wildlife biologists, foresters, range managers, horticulturalists, naturalists and the general public.

At a November 25, 2013 workshop *The Future of Shrubs in Oil Sands Reclamation* (Oil Sands Research and Information Network 2013) participants noted a lack of awareness of (and for many species the need for) the types of information contained in these species profiles. This report is a valuable tool for those directly responsible for planning and executing reclamation in the oil sands as well as for other professionals involved in native plant work. Individual species profiles are also available online at the link provided with the references.

We hope to update the online species profiles as more information becomes available; you can help by sending additional information (with associated references) to Chris Powter at osrin@ualberta.ca

| | |
|---|---|
| • Species Nomenclature | • Pollination Mechanisms |
| • Plant Description | • Genetic Information |
| • Habitat and Distribution | • Known Symbioses |
| • Phenology | • Seed Processing |
| • Propagation | • Reclamation Potential |
| • Aboriginal/Food Uses | • Commercial Resources |
| • Wildlife/Forage Usage | • Notes and Comments |

Anemone Canadensis. Photo by Mencerke Bloem, used with permission.

## References and Links

***Online Link:*** http://www.osrin.ualberta.ca/en/Resources/RevegSpeciesProfiles.aspx

***References:***

Moss, E.H., 1983. Flora of Alberta. *A manual of flowering plants, conifers, ferns, and fern allies found growing without cultivation in the province of Alberta, Canada. 2nd edition. University of Toronto Press, Toronto Ontario.*

Oil Sands Research and Information Network, 2013. *Future of Shrubs in Oil Sands Reclamation Workshop. Oil Sands Research and Information Network, School of Energy and the Environment, University of Alberta. OSRIN Report No. TR-43. 71 pp. http://hdl.handle.net/10402/era.37440*

Smreciu, A., K. Gould and S. Wood, 2013. *Boreal Plant Species for Reclamation of Athabasca Oil Sands Disturbances. Oil Sands Research and Information Network, School of Energy and the Environment, University of Alberta. OSRIN Report No. TR-44. 23 pp. plus appendices. http://hdl.handle.net/10402/era.37533 (note - large file; 419 pp. appendices)*

# ASPB Salary Survey Highlights

***Authors: Norma Calvo, P. Biol., Tara Caseley, P. Biol., and Andrea Dechene, P. Biol.***

The Alberta Society of Professional Biologists (ASPB) gathered data from its membership through a voluntary salary survey in December 2012. There were 309 respondents. This, the second ASPB salary survey (the first survey results were released during the winter of2008) follows the same format as the first: data were collected on salary, benefits, vacation time and a number of membership parameters. A total of 306 salary records were tabulated for comparison, and may be subject to variances.

The level of education was roughly equivalent between genders within each education level: for those with a bachelor's degree, 53% are male and 47% are female, for those with a master's degree 57% are male and 51% are female and for those with a doctorate degree 64% are male and 36% are female.

The average annual salary for all biologists in Alberta is $97,961.68, with a range of $28,800 to 728,000. The second highest salary reported, $384,800 will be considered the highest salary for the remainder of the analysis as the highest salary is an outlier and would skew the data. Regular members averaged $104,334 (ranging from $35,000–$384,800) and Biologist in Training (BIT) members averaged $61,148 (ranging from $35,000–$130,000). Male respondents averaged $105,283 (ranging from $28,800–$325,000) and females averaged $84,075 (ranging from $35,000–$384,800). Members with 0-5 years of experience earned an average $65,129 (46 females and 35 males), while biologists with 6-10 years of experience earned $84,705 on average (41 females and 40 males) (Figure 1). Biologists with 11-15 years of experience averaged $105,460 (26 females and 36 males), and biologists with over 15 years of experience averaged $130,532 (22 females and 59 males).

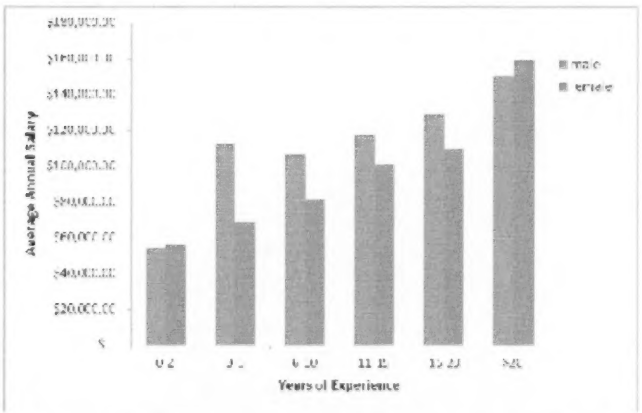



**Figure 1 Mean annual salary of ASPB survey respondents based on experience and gender.**

In terms of education, the average annual salary increased as a function of years of education (Figure 2). Members with a bachelor's degree averaged just over $87,000 per year (ranging from $28,800–$384,000), while those with a master's degree averaged over $103,000 per year (ranging from $35,000–$325,000). Finally, those with a doctorate degree averaged over $108,000 per year (ranging from $35,000–$250,000). The highest average annual salary by employment sector was in the oil and gas industry sector, followed by the consulting sector, followed by municipal government, federal government, provincial government and other industry (Figure 3).

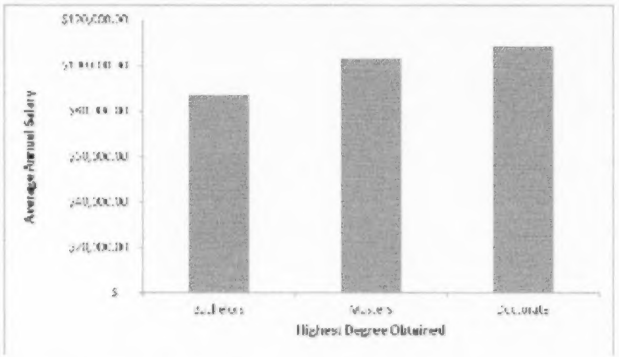



**Figure 2 Mean annual salary of ASPB survey respondents by degree completed.**

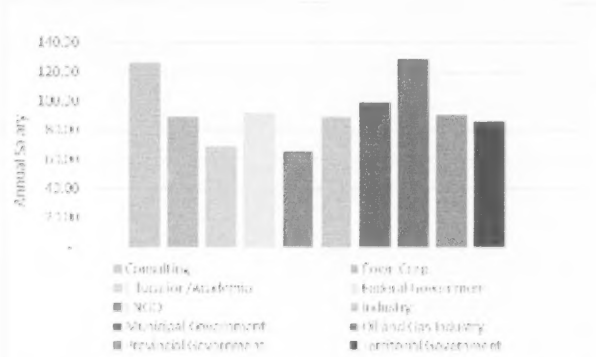


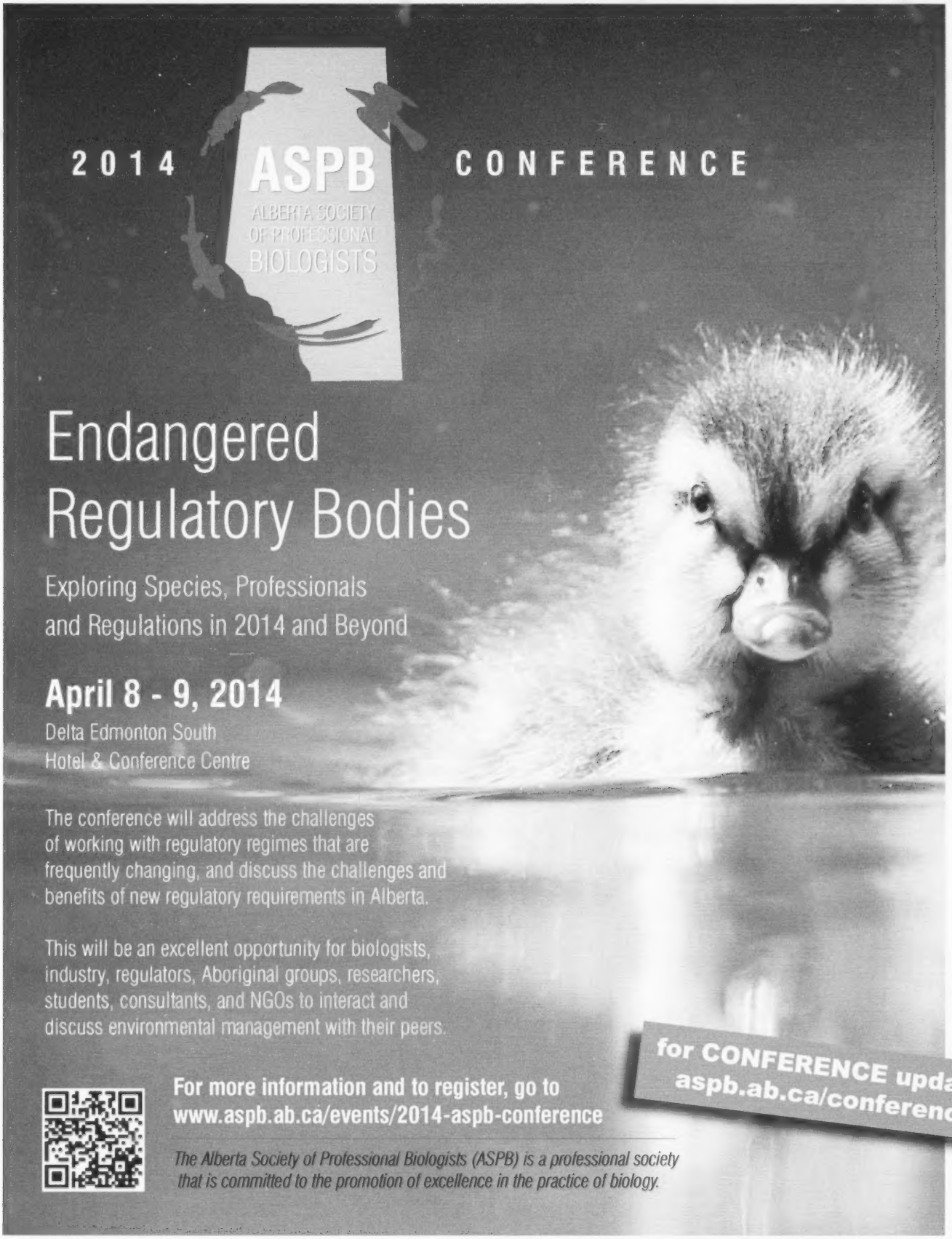

**Figure 3 Mean annual salary of ASPB survey respondents by employment sector.**

**NOTE: Complete Survey Results are available on the ASPB website under Member Downloads.**

# Guest Speaker Karsten Heuer To Talk About Needed Change

Well-known biologist Karsten Heuer is no stranger to his Alberta colleagues and will become even more familiar this spring, with a presentation at a "Brown Bag Luncheon" on March 11 just a scant month before he comes to the ASPB Conference as Guest Speaker.

Heuer is president of the Yellowstone to Yukon Conservation (Y2Y) Initiative, on which he will be focusing in March. But he is much more than that; prior to leading Y2Y he worked as a wildlife biologist and wilderness park ranger for Parks Canada for 18 years and has become widely acknowledged as an explorer, author and filmmaker who has not only walked from Yellowstone to Yukon but also spent five months following an Arctic caribou herd and a half year canoeing and sailing across Canada with his wife and two-year-old son. He is the author of two popular books about those adventures. As guest speaker he will weave what he's learned on the trail with gleanings from his time in government and corporate boardrooms to find answers to the question "how we can bring about needed change in an ever-shifting world."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for CONFERENCE updates
aspb.ab.ca/conference
For more information and to register, go to
www.aspb.ab.ca/events/2014-aspb-conference
The Alberta Society of Professional Biologists (ASPB) is a professional society that is committed to the promotion of excellence in the practice of biology.